

DOT 500 - Seawater pump development

Publieke samenvatting / Public summary

Aanleiding

Offshore wind has developed incrementally from onshore turbines being enlarged for offshore use resulting in high €/kWh. Since 2008 the Delft Offshore Turbine concept has been tackling this challenge via a holistic design approach and currently the DOT technology is being tested by DOT BV in a 500kW prototype.

Doelstelling

The DOT development aims at reducing the price of the offshore wind turbine by 50%. To achieve this, DOT replaces the heavy copper generator and other ancillary installation in the nacelle by a sea water pump. This reduces 75% of the content and 50% of the weight of the nacelle as well as a reduction of 40% in the support structure.

Korte omschrijving

Since the needed drive train technology is not available on the market the next step for DOT is the development of a dedicated seawater pump. In this project a medium scale prototype of a dedicated seawater pump will be designed, built and tested in an indoor test set-up. The foreseen steps in this project are: 1. Design & Prototyping towards the best Camring-Piston Shoe lubrication and bearing technology; 2. Design & Prototyping towards the best Cylinder technology; 3. Design, build & test a medium scale Seawater Pump prototype. The design will benefit from the previous phases within the DOT development in which a 500kW drive train concept, using off the shelf oil pumps was developed, tested and then operated in the real wind.

Projectinformatie / Project information

Projectnummer / Project number

TEWZ116036

Subsidiebedrag / Grant amount

€ 949.000,00

Algemene informatie / General information

Penvoerder / Secretariat

Delft Offshore Turbine BV

Publicaties en materialen / Publications and attachments

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Eindrapport TEWZ116036

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Resultaat

The goal of the project is to have a tested low speed/high torque radial piston seawater pump technology which meets all the requirements and is ready for scaling up towards a 3 - 7 MW pump needed for the full scale DOT demonstration phases.

Therefore the main objective is to develop an efficient, robust and easy to maintain seawater pump, with the following design requirements: - Efficiency > 85% - Wear components replace > 2year - Replacing all wear components < 4 hours - Active control of pump displacement step size < cylinder volume - Scalable into a full scale 3 - 7 MW design

De data in deze applicatie is afkomstig van de Rijksdienst voor Ondernemend Nederland (RVO) en wordt in samenwerking met de Topsector Energie ontsloten.

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